



ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA-R09-OAR-2012-0253; FRL-9658-6]

**Approval and Promulgation of Air Quality Implementation Plan for
1997 8-hour Ozone Standard; Arizona**

AGENCY: U.S. Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: EPA is proposing to approve revisions to the Arizona state implementation plan (SIP) that demonstrate attainment of the 1997 8-hour ozone national ambient air quality standards in the Phoenix-Mesa nonattainment area by June 15, 2009. These SIP revisions are the 2007 Ozone Plan developed by the Maricopa Association of Governments and adopted and submitted to EPA by the Arizona Department of Environmental Quality on June 13, 2007. EPA is proposing to approve the 2007 Ozone Plan based on our determination that the plan contains all the provisions required for areas classified as nonattainment under Part D, Subpart 1 of the Clean Air Act, including the demonstration of reasonably available control measures (RACM), reasonable further progress (RFP), emission inventories, transportation conformity motor vehicle emission budgets for 2008, and contingency measures to be implemented if the Phoenix-Mesa nonattainment area fails to attain by June 15, 2009.

DATES: Written comments must be received on or before [Insert date 30 days from the date of publication in the Federal Register].

ADDRESSES: Submit comments, identified by docket number EPA-R09-OAR-2012-0253, by one of the following methods:

- Federal e-Rulemaking Portal: www.regulations.gov. Follow the on-line instructions.
- E-mail: lee.anita@epa.gov.
- Mail or deliver: Marty Robin, Office of Air Planning (AIR-2), U.S. Environmental Protection Agency Region IX, 75 Hawthorne Street, San Francisco, CA 94105.

Instructions: All comments will be included in the public docket without change and may be made available online at www.regulations.gov, including any personal information provided, unless the comment includes Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Information that you consider CBI or otherwise protected should be clearly identified as such and should not be submitted through www.regulations.gov or e-mail. The www.regulations.gov website is an "anonymous access" system, and EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send e-mail directly to EPA, your e-mail address will be automatically captured and included as part of the public

comment. If EPA cannot read your comments due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment.

Docket: The index to the docket for this action is available electronically on the www.regulations.gov website and in hard copy at EPA Region IX, 75 Hawthorne Street, San Francisco, California, 94105. While all documents in the docket are listed in the index, some documents may be publicly available only at the hard copy location (e.g., copyrighted material), and some may not be publicly available at either location (e.g., CBI). To inspect the hard copy materials, please schedule an appointment during normal business hours with the contact listed in the **FOR FURTHER INFORMATION CONTACT** section below.

Copies of the SIP materials are also available for inspection at the following location:

- Arizona Department of Environmental Quality, 1110 W. Washington Street, First Floor, Phoenix, AZ 85007, Phone: (602) 771-2217.

The SIP materials are also electronically available at:

<http://www.azmag.gov/Projects/Project.asp?CMSID2=1120>.

FOR FURTHER INFORMATION CONTACT: Anita Lee, Air Planning Office (AIR-2), U.S. Environmental Protection Agency, Region IX, (415) 972-3958, lee.anita@epa.gov.

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I. The 1997 8-Hour Ozone Standard and the Phoenix-Mesa Ozone Nonattainment Area

A. Background on the 1997 8-Hour Ozone NAAQS

Ground-level ozone pollution is formed in the atmosphere from the reaction of volatile organic compounds (VOC) and oxides of nitrogen (NO_x) in the presence of sunlight. These two pollutants, referred to as ozone precursors, are emitted by many types of pollution sources including on- and off-road motor vehicles and engines, power plants and industrial facilities, and smaller area sources such as lawn and garden equipment and paints.

Scientific evidence indicates that adverse public health effects occur following exposure to ozone, particularly in children and adults with lung disease. Breathing air containing ozone can reduce lung function and inflame airways, which can increase respiratory symptoms and aggravate asthma or other lung diseases. Ozone exposure also has been associated with increased susceptibility to respiratory infections, medication use, doctor visits, and emergency department visits and hospital admissions for individuals with lung disease. Ozone exposure also increases the risk of premature death from heart or lung disease. Children are at increased risk from exposure to ozone because their lungs are still developing and they are more likely to be active outdoors, which increases exposure. See "Fact Sheet, Proposal to

Revise the National Ambient Air Quality Standards for Ozone", January 6, 2010 and 75 FR 2938 (January 19, 2010).

On July 18, 1997, EPA revised the primary and secondary national ambient air quality standards (NAAQS or standard) for ozone to replace the existing 1-hour ozone standard of 0.12 parts per million (ppm) with an 8-hour standard of 0.08 ppm¹ (62 FR 33856). EPA revised the ozone standard after considering substantial evidence from numerous health studies demonstrating that serious health effects are associated with exposures to ozone concentrations above the levels of these revised standards.

B. The Phoenix-Mesa 8-Hour Ozone Nonattainment Area

Following promulgation of a new or revised NAAQS, EPA is required by Clean Air Act (CAA) section 107(d) to designate areas throughout the nation as attaining or not attaining the NAAQS. Under the implementation rule for the 1997 8-hour ozone standard, EPA designated certain areas as nonattainment under title I, part D, subpart 1 of the CAA (subpart 1) if the area's 1-hour ozone design value was above the level of the standard but below 0.121 ppm. On April 15, 2004, EPA designated Phoenix-Mesa as "Subpart 1" nonattainment for the 1997 8-hour ozone standard under CAA section 172. See 69 FR 23858 (April 30, 2004)

¹ In March 2008, EPA completed another review of the primary and secondary ozone standards and further tightened the standards by lowering the level for both to 0.075 ppm (73 FR 16436, Mar. 27, 2008).

and 40 CFR 81.303. The designation became effective on June 15, 2004. Under part D, subpart 1 of the Act, states must submit plans to come into attainment within 3 years of the effective date of the nonattainment designation, and must attain the standard as expeditiously as practicable, but no later than 5 years after the effective date of the designation. Arizona Department of Environmental Quality (ADEQ) submitted the 2007 Attainment Plan to EPA on June 13, 2007² to attain the 1997 8-hour ozone standard by the attainment date of June 15, 2009, which is 5 years after the effective date of the area's designation as nonattainment.³

In June 2007, the United States Court of Appeals for the District of Columbia Circuit (D.C. Circuit Court) vacated the portion of the 2004 ozone implementation rule that allowed areas to be classified under subpart 1. See *South Coast Air Quality Mgmt. Dist. v. EPA*, 472 F. 3d 882 (D.C. Cir. 2006), *reh'g denied* 489 F.3d 1245 (SCAQMD) (vacating certain elements of EPA's Phase 1 ozone implementation rule). On January 16, 2009 (74 FR 2936),

² Letter from Stephen A. Owens, Director, Arizona Department of Environmental Quality to Wayne Nastri, Regional Administrator, U.S. Environmental Protection Agency, Region IX, dated June 13, 2007, plus three enclosures, including the "Eight-Hour Ozone Plan for the Maricopa Nonattainment Area, dated June 2007" and Appendices Volumes one and two, dated June 2007.

³ On March 23, 2009, ADEQ submitted to EPA a redesignation request and maintenance plan for Phoenix-Mesa for the 1997 8-hour ozone standard based on ambient ozone monitoring data for the 2006 - 2008 period. EPA has not yet acted on this submittal. The maintenance plan and redesignation request are available from the Maricopa Association of Governments at: <http://www.azmag.gov/Projects/Project.asp?CMSID2=1120&MID=Environmental%20Programs>

EPA published a proposed rule to address, among other issues, the D.C. Circuit Court vacatur of the classification system that EPA used to designate a subset of initial 1997 8-hour ozone nonattainment areas under subpart 1. In that rulemaking, EPA proposed that all areas designated nonattainment for the 1997 8-hour ozone NAAQS under subpart 1 would be classified as subpart 2 areas (hereafter referred to as the Subpart 1/Subpart 2 Rulemaking). The Phoenix-Mesa area is included in the areas that would be classified under subpart 2 if EPA's proposal is finalized. EPA has not yet taken final action on the Subpart 1/Subpart 2 Rulemaking. Following completion of the Subpart 1/Subpart 2 Rulemaking, EPA will address in a future rulemaking any additional requirements that become applicable to Phoenix-Mesa, if any, as a result of its classification under subpart 2. If, after Phoenix-Mesa is classified under subpart 2, EPA determines in a future rulemaking that the area is in attainment with the 1997 8-hour ozone standard, then the obligation to submit certain planning SIPs related to attainment of the 1997 8-hour ozone standard pursuant to its subpart 2 classification would be suspended in accordance with 40 CFR 51.918.

The Phoenix-Mesa nonattainment area is located in the central portion of Arizona and encompasses 4,880 square miles, including the urban portions of Maricopa and Pinal Counties, the Fort McDowell Yavapai Nation and the Salt River-Pima Maricopa

Indian Community. For a precise description of the geographic boundaries of the Phoenix-Mesa nonattainment area, see 40 CFR 81.303. The Maricopa Association of Governments (MAG) is the agency with primary responsibility for developing the plan to attain the 1997 8-hour ozone standard for Phoenix-Mesa.

Ambient 8-hour ozone concentrations in Phoenix-Mesa vary depending on location and season, with the highest values generally occurring in May - September, in north Phoenix or the air quality monitors located in the mountainous northeastern region of the Phoenix-Mesa nonattainment area. Ozone design values⁴ from Phoenix-Mesa that exceeded the 1997 8-hour standard of 0.08 parts per million⁵ (ppm) ranged from 0.085 ppm (for the 2000 - 2002, 2001 - 2003, and 2003 - 2005 periods) to 0.088 ppm (for the 1998 - 2000 and 1999 - 2001 periods). The ozone design values for the Phoenix-Mesa nonattainment area for the 2004 - 2006 period (highest design value was 0.083 ppm) and years thereafter were at or below the standard. See EPA Air Quality System (AQS) data available in the docket for this proposed rulemaking and Table 3 below.

⁴ A design value is an ambient concentration calculated using a specific methodology to evaluate monitored air quality data and is used to determine whether an area's air quality meets a NAAQS. The methodology for calculating design values for the 8-hour ozone NAAQS is found in 40 CFR part 50, Appendix I.

⁵ Based on the rounding conventions described in 40 CFR part 50, Appendix I, a design value of 0.085 ppm is the lowest value that exceeds the 1997 8-hour ozone NAAQS of 0.08 ppm.

II. CAA and Regulatory Requirements for 1997 8-Hour Ozone

Nonattainment Area SIPs

Each area designated nonattainment for the 1997 8-hour ozone standard is subject to, at minimum, the general requirements for nonattainment area plans in subpart 1 of part D, title I of the CAA. Subpart 2 of part D contains more detailed requirements for ozone nonattainment areas classified under this subpart. The Phoenix-Mesa ozone nonattainment area is not currently classified under subpart 2.⁶ EPA has proposed to classify the Phoenix-Mesa area under subpart 2 as "marginal" nonattainment for the 1997 8-hour ozone NAAQS (see 74 FR 2936 at 2944, January 16, 2009) but has not yet completed this rulemaking. Although a future final decision by EPA to classify the Phoenix-Mesa area under subpart 2 may trigger additional future requirements for the area, EPA believes that this does not prevent EPA from proposing or ultimately finalizing our action on the 2007 Ozone Plan in accordance with the subpart 1 requirements that currently apply to the area.⁷ Thus, for purposes of evaluating the 2007 Ozone Plan, we are reviewing it for consistency with the applicable requirements of part D,

⁶ EPA now refers to these areas as "former subpart 1" nonattainment areas in light of the *SCAQMD* decision.

⁷ EPA is currently obligated under the terms of a Consent Decree to take final action on the 2007 Ozone Plan by May 31, 2012. See *WildEarth Guardians v. Jackson*, Case No. 4:11-cv-02205-SI (N.D. CA).

title I of the Act, which are contained in sections 172(c)(1)-(9).⁸

In order to assist states in developing effective plans to attain the ozone standard, EPA issued the 8-hour ozone implementation rule. This rule was finalized in two phases. The first phase of the rule addresses classifications for the 1997 8-hour ozone standard, applicable attainment dates for the various classifications, and the timing of emissions reductions needed for attainment. See 69 FR 23951 (April 30, 2004). The second phase addresses SIP submittal dates and the requirements for reasonably available control technology and measures (RACT and RACM), reasonable further progress (RFP) demonstration, modeling and attainment demonstrations, contingency measures, and new source review. See 70 FR 71612 (November 29, 2005). The rule is codified at 40 CFR part 51, subpart X.⁹ We discuss each of the applicable CAA and regulatory requirements for 8-hour ozone nonattainment plans in more detail below.

III. Arizona's State Implementation Plan Submittal to Address Ozone Attainment in the Phoenix-Mesa Nonattainment Area

⁸ Although the D.C. Circuit Court in *SCAQMD* rejected EPA's rationale for implementing the 1997 8-hour ozone standard in certain nonattainment areas solely under subpart 1, EPA does not believe that the Court's ruling in this case alters any subpart 1 requirements that currently apply to the 2007 Ozone Plan.

⁹ EPA has revised or proposed to revise several elements of the 8-hour ozone implementation rule since its initial promulgation in 2004. See, e.g., 74 FR 2936 (January 16, 2009); 75 FR 51960 (August 24, 2010); and 75 FR 80420 (December 22, 2010). None of these revisions affect any provision of the rule that is applicable to our proposed action today on the Phoenix-Mesa 2007 8-hour Ozone SIP.

A. Arizona's SIP Submittal

On June 13, 2007, the Arizona Department of Environmental Quality (ADEQ) submitted the "Eight-Hour Ozone Plan for the Maricopa Nonattainment Area" (2007 Ozone Plan) to EPA as a revision to the Arizona SIP. The plan was deemed complete by operation of law on December 13, 2007. MAG developed the 2007 Ozone Plan and the MAG Regional Council Executive Committee adopted the plan on June 11, 2007. ADEQ adopted the plan on June 13, 2007.¹⁰ The 2007 Ozone Plan contains complete emission inventories for ozone precursors for 2002 and 2008, photochemical modeling to demonstrate that the standard will be attained in 2008 through the continued implementation of federal, state, and local control measures, motor vehicle emission budgets (MVEBs) used for transportation conformity, and descriptions of the State's compliance with CAA requirements for "Subpart 1" ozone nonattainment areas. We are proposing to approve the 2007 Ozone Plan for the Phoenix-Mesa nonattainment area.

B. CAA Procedural and Administrative Requirements for SIP Submittals

CAA sections 110(a)(1) and (2) and 110(l) require a state to provide reasonable public notice and opportunity for public

¹⁰ Letter from Stephen A. Owens, Director of Arizona Department of Environmental Quality, to Wayne Nastri, Regional Administrator, U.S. Environmental Protection Agency, Region IX, "Submittal of the Eight-Hour Ozone Plan for the Maricopa County Nonattainment Area". June 13, 2007.

hearing prior to the adoption and submittal of a SIP or SIP revision. To meet this requirement, every SIP submittal should include evidence that adequate public notice was given and an opportunity for a public hearing was provided consistent with EPA's implementing regulations in 40 CFR 51.102.

MAG has satisfied the applicable statutory and regulatory requirements for reasonable public notice and hearing prior to adoption and submittal of the 2007 Ozone Plan. MAG and ADEQ jointly held two public hearings on June 1, 2007 and June 4, 2007. As evidence of notification of public hearings consistent with 40 CFR 51.102, the SIP submittal includes proof of newspaper publication and copies of letters sent to EPA and affected federal, state, and local agencies notifying interested parties of the joint MAG and ADEQ public hearings. We find, therefore, that the 2007 Ozone Plan submittal meets the procedural requirements for public notice and hearing in sections 110(a) and 110(1) of the CAA.

CAA section 110(k)(1)(B) requires EPA to determine whether a SIP submittal is complete within 60 days of receipt. This section also provides that any plan submittal that EPA has not affirmatively determined to be complete or incomplete will be deemed complete by operation of law six months after the date of submittal. EPA's SIP completeness criteria are found in 40 CFR part 51, Appendix V. The 2007 Ozone Plan, submitted by ADEQ on

June 13, 2007, was deemed complete by operation of law on December 13, 2007.

IV. Review of the 2007 Ozone Plan for Phoenix-Mesa

EPA evaluated the 2007 Ozone Plan according to the general subpart 1 nonattainment plan requirements contained in section 172(c) of the Act.

A. Emission Inventories

1. Requirements for Emissions Inventories

CAA section 172(c)(3) requires each state with an ozone nonattainment area to submit plan provisions that include a "comprehensive, accurate, current inventory of actual emissions from all sources of the relevant pollutant or pollutants in such area, including such periodic revisions as the Administrator may determine necessary to assure that the requirements of this part are met". EPA has issued the "Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations" (EI Guidance),¹¹ which provides guidance on how to develop base year and future year baseline emission inventories for 8-hour ozone, PM_{2.5}, and regional haze SIPs. For areas designated nonattainment for the 8-hour ozone standard in 2004, EPA recommends using

¹¹ "Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations", EPA-454/R-05-001, November 2005. This document is available at: <http://www.epa.gov/ttnchie1/eidocs/eiguid/index.html>.

calendar year 2002 as the base year for the inventory. EI Guidance, p. 8.

Emissions inventories for ozone should include emissions of VOC, NO_x and carbon monoxide (CO) and represent an average summer week day during the ozone season. See EI Guidance, pp. 14 and 17. States should include documentation in their submittals explaining how the emissions data were calculated. See 70 FR 71612 (Nov. 29, 2005) and EI Guidance p. 40. In estimating mobile source emissions, states should use the latest emissions models and planning assumptions available at the time the SIP is developed. See 68 FR 32802 (June 2, 2003) and 70 FR 71612 (Nov. 29, 2005).

2. Emission Inventories in the 2007 8-Hour Ozone Plan

The base year and future year baseline inventories for NO_x, CO and VOC for the Phoenix-Mesa nonattainment area, together with additional documentation for the inventories, are found in Volume 1 of the Appendices to the 2007 Ozone Plan.¹² These inventories represent average summer day (ozone season) emissions. A base year inventory is provided for 2002 and the projected baseline inventory is provided for the attainment year

¹² By "future year baseline inventories" or "projected baseline inventories", we mean projected emission inventories for future years that account for, among other things, the ongoing effects of economic growth and adopted emission control requirements.

of 2008.¹³ All inventories include NO_x, CO, and VOC emissions from point, area, nonroad mobile, and onroad mobile sources, except that biogenic emission inventories include only NO_x and VOC emissions.

The 2002 Periodic Emission Inventory (PEI) emissions estimates for Maricopa County and the Phoenix-Mesa nonattainment area, which provided the basis for the 2002 base year inventory, were calculated in terms of annual emissions and ozone season-day emissions. Emissions from point sources were estimated from each identified facility through permit system databases and annual emission reports submitted to the facility's permitting authority. Emissions from area sources were estimated by source category using information from permit databases and previous SIP inventories. Nonroad mobile source emissions were estimated with the EPA NONROAD 2002 model and onroad mobile source emissions were estimated from emission factors for various vehicle classes from MOBILE6.2 combined with estimates of vehicle miles traveled (VMT) using data submitted by the Arizona Department of Transportation to the U.S. Department of Transportation's Federal Highway Administration for the 2002 Highway Performance and Monitoring System. Biogenic emissions of

¹³ EPA's ozone implementation rule defines "attainment year ozone season" as "the ozone season immediately preceding a nonattainment area's attainment date." 40 CFR 51.900(g). Because the attainment date for Phoenix-Mesa is June 15, 2009, we refer to 2008 as the attainment year, and the 2008 ozone season as the "attainment year ozone season."

NO_x and VOC were calculated using MAGBEIS2, a modified version of the UAM-BEIS2 model developed specifically for use in Maricopa County, based on land use information, surface temperature data, and emission factors for land use categories. See 2002 Periodic Emissions Inventory for Ozone Precursors, June 2004 in Volume 1 of the Appendices to the 2007 Ozone Plan.

Ozone precursor emissions from point, area, onroad, and nonroad sources used in the modeling domain (Table 1) were developed from the Comprehensive Air Quality Model with Extensions (CAMx), version 4.40, and the Emissions Preprocessor System (EPS3.0), based on the 2002 Periodic Emission Inventory for the three ozone episodes modeled for 2002. Biogenic VOC emission estimates used for the 2002 modeling domain (e.g., 451.3 metric tons per day in the June 2002 ozone episode) are significantly higher than biogenic VOC emissions estimated in the 2002 PEI (e.g., 41.7 metric tons per ozone season day). Section III of Appendix A, Exhibit 2 of the 2007 Ozone Plan describes the method used to estimate biogenic emissions for the modeling domain. MAG used a model developed in 2005, called Model of Emissions of Gases and Aerosols from Nature (MEGAN), that was determined to be more reliable and accurate for Maricopa County because it relies on local field studies that identified dominant plant species and emission factors, as well as locations and biomass densities, to estimate biogenic

emissions of ozone precursors. In the 2002 base year inventory, biogenic sources contributed 65 percent to total VOC emissions. In contrast, anthropogenic onroad mobile sources dominated the total NO_x emissions and accounted for 63 percent of total NO_x. See Tables 5-3 and 5-4 of the 2007 Ozone Plan.

The 2002 inventory was projected to 2008 by accounting for expected growth factors, ongoing control programs, and retirement rates for obsolete sources of emissions. MAG accounted for known projects in 2008 (e.g., the Phoenix Expansion Project of the Transwestern Pipeline Company) and additionally applied a five percent increase to onroad mobile source emissions of NO_x and a three percent increase to all other anthropogenic emissions of VOC and NO_x. The three percent increase was based on population projections prepared by the Arizona Department of Economic Security, based on a 2005 special census in Maricopa County. MAG applied the five percent increase to onroad mobile source emissions of NO_x to create a safety margin for transportation conformity. See 2007 Ozone Plan, p. 5-5, and Appendices to Ozone Plan, Volume 1.

For biogenic emissions, the 2002 inventory was held constant for 2008. In additional information provided to EPA, MAG explained that no projected land use or land cover data was available for the 2008 attainment year, therefore biogenic

emissions in the ozone modeling domain were held constant¹⁴. In the approved 1-hour ozone maintenance plan, MAG projected an increase in VOC emissions from the Phoenix Metropolitan nonattainment area due to changes in land use, i.e., increasing urbanization and residential land use and decreasing use of land for agriculture. See 70 FR 13425 (Mar. 21, 2005). The 1-hour ozone maintenance plan relied on MAGBEIS2 to estimate biogenic emissions from the nonattainment area and modeling domain.¹⁵ As shown in the additional information provided by MAG on February 8, 2012, the MAGBEIS2 VOC emission factor for urbanized land use is greater than the VOC emission factor for agricultural land use, therefore, based on the projected increased urbanization in the 1-hour ozone nonattainment area, VOC emissions projected by MAGBEIS2 increased from the 1999 base year to the 2015 maintenance year. In contrast, as described above, the 2007 8-hour ozone plan relied on a new biogenic emissions model (MEGAN) that is more representative of Maricopa County and its desert environment. The additional information provided by MAG shows the urbanized land use emission factors from MEGAN are lower than emission factors associated with agriculture or other undeveloped desert landscapes in Maricopa County. Therefore, using MEGAN, MAG expects that the trend of increasing

¹⁴ Email from Cathy Arthur, MAG, to Anita Lee, EPA, re: "Biogenic VOCs" on February 8, 2012, plus two attachments on land use boundaries and emission factors.

¹⁵ *Ibid.*

urbanization (as projected in the 1-hour ozone maintenance plan) is expected to decrease VOC emissions from Maricopa County. Because MAG did not have 2008 land use data available, it determined that maintaining constant biogenic emissions of the ozone precursors would be more conservative than attempting to estimate the anticipated decrease in biogenic VOC emissions.¹⁶

Table 1: Emission Inventories for the Phoenix-Mesa Modeling Domain for June Ozone Episode (metric tons per day)

	NO _x		VOC	
	2002	2008	2002	2008
Point	11.15	32.78	11.72	13.55
Area	9.79	13.49	90.56	105.03
Nonroad Mobile	79.97	86.58	50.73	57.55
Onroad Mobile	182.36	145.52	91.84	72.34
Biogenics	8.56	8.56	451.28	451.28
Total	291.82	286.93	696.13	699.75

Source: 2007 Ozone Plan at Tables 5-3 and 5-4.

3. Proposed Action on the Emission Inventories

We have reviewed the 2002 base year inventory and the inventory methodologies used in the 2007 Ozone Plan and believe that the inventory was developed consistent with the CAA

¹⁶*Ibid.*

requirements as reflected in the 8-hour ozone implementation rule and EPA's guidance. The 2002 base year inventory is a comprehensive inventory of actual emissions of ozone precursors in the Phoenix-Mesa nonattainment area. We therefore propose to approve the base year inventory as meeting the requirements of CAA section 172(c)(3) and EPA's 8-hour ozone implementation rule.

B. Reasonably Available Control Measures Demonstration and Control Strategy

1. Requirements for RACM and Control Strategies

CAA Section 172(c)(1) requires that each attainment plan "provide for the implementation of all reasonably available control measures as expeditiously as practicable (including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of reasonable available control technology), and shall provide for attainment of the national primary ambient air quality standards." The 8-hour ozone implementation rule requires that for each nonattainment area that is required to submit an attainment demonstration, the state must also submit concurrently a SIP revision demonstrating that it has adopted all RACM necessary to demonstrate attainment as expeditiously as practicable and to meet any RFP requirements. 40 CFR 51.912(d).

EPA has previously provided guidance interpreting the RACM requirement in the General Preamble at 13560¹⁷ and in a memorandum entitled "Guidance on the Reasonably Available Control Measure Requirement and Attainment Demonstration Submissions for Ozone Nonattainment Areas", John Seitz, Director, OAQPS to Regional Air Directors, November 30, 1999 (Seitz memo). In summary, EPA guidance provides that, to address the requirement to adopt all RACM, states should consider all potentially reasonable control measures for source categories in the nonattainment area to determine whether they are reasonably available for implementation in that area and whether they would, if implemented individually or collectively, advance the area's attainment date by one year or more. See Seitz memo and General Preamble at 13560.¹⁸ Any measures that are necessary to meet these requirements that are not already either federally promulgated, part of the state's SIP, or otherwise creditable in SIPs must be submitted in enforceable form as part of a state's attainment plan for the area.

¹⁷ The "General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990", published at 57 FR 13498 on April 16, 1992, describes EPA's preliminary view on how we would interpret various SIP planning provisions in title I of the CAA as amended in 1990, including those planning provisions applicable to the 1-hour ozone standard. EPA continues to rely on certain guidance in the General Preamble to implement the 8-hour ozone standard under title I.

¹⁸ See also "State Implementation Plans; General Preamble for Proposed Rulemaking on Approval of Plan Revisions for Nonattainment Areas", 44 FR 20372 (April 4, 1979), and Memorandum dated December 14, 2000 from John S. Seitz, Director, Office of Air Quality Planning and Standards, "Additional Submission on RACM from States with Severe One-Hour Ozone Nonattainment Area SIPs".

CAA section 172(c)(6) requires nonattainment plans to "include enforceable emission limitation, and such other control measures, means, or techniques (including economic incentives such as fees, marketable permits, and actions of emission rights), as well as schedules and timetables for compliance, as may be necessary or appropriate to provide for attainment of such standard in such area by the applicable attainment date * * *." See also CAA section 110(a)(2)(A). The ozone implementation rule requires that all control measures needed for attainment be implemented no later than the beginning of the attainment year ozone season. See 40 CFR 51.908(d). The attainment year ozone season is defined as the ozone season immediately preceding a nonattainment area's attainment date. See 40 CFR 51.900(g).

2. RACM Demonstration and the Control Strategy in the 2007 Ozone Plan

The attainment demonstration for the Phoenix-Mesa nonattainment area, which we discuss further in section IV.D of this document, shows that implementation of all of the measures identified as RACM for the 1997 8-hour ozone NAAQS would enable the Phoenix-Mesa area to attain the 1997 8-hour ozone standard during the 2008 ozone season, preceding the 2009 attainment date for the area. EPA previously approved all of the key NO_x and VOC control measures, including several dozen VOC RACT rules, as part of Arizona's plans for attaining and maintaining the 1-hour

ozone standard in Phoenix-Mesa.¹⁹ The 2007 Ozone Plan specifically relies on seven of these control measures to demonstrate attainment of the 1997 8-hour ozone standard by June 15, 2009, and provides for implementation of these measures by the beginning of the attainment year ozone season (January 2008), consistent with the requirements of 40 CFR 51.908(d). See 2007 Ozone Plan at pp. 4-2 through 4-7.²⁰ We discuss below the seven measures that the attainment demonstration in the 2007 Ozone Plan relied on to reduce emissions of VOC and/or NO_x (see Table 2). Emission reductions associated with each measure were estimated for the June 2008 ozone episode modeled for the attainment demonstration. Of these seven measures, phased-in emission test cutpoints and the development of intelligent transportation systems resulted in the greatest reduction in VOC emissions, and the summer fuel reformulation resulted in the greatest reduction in NO_x emissions.

¹⁹ See, e.g., 2007 Ozone Plan at Table 1-1; 68 FR 2912 (January 22, 2003); 69 FR 10161 (March 4, 2004); 70 FR 30370 (May 26, 2005); 70 FR 13425 (March 21, 2005) (proposed redesignation of Phoenix to attainment for the 1-hour standard) and 70 FR 34362 (June 14, 2005) (final redesignation). RACT rules for NO_x were not required for purposes of attaining and maintaining the 1-hour ozone NAAQS in Phoenix-Mesa because EPA approved a petition for NO_x exemption for this purpose. 60 FR 19510 (April 19, 1995).

²⁰ The 2007 Ozone Plan refers to these seven control measures as "attainment measures," to be distinguished from "baseline measures," which were taken into account in the base year and projection year emission inventories. See 2007 Ozone Plan at 4-2 and Volume 1 of the Appendices to the 2007 Ozone Plan at Table III-1.

Table 2: 2008 Emission Reductions from "Attainment Measures"

	VOC		NO _x	
	Metric ton/day reduction	% change compared to 2008 base case	Metric ton/day reduction	% change compared to 2008 base case
Summer Fuel Reformulation	(0.1) (increase)	< 0.1% (increase)	10.3	3.5%
Phased-in Emission Test Cutpoints	3.1	1.2%	2.6	0.9%
One Time Waiver from Vehicle Emissions Test	0.1	< 0.1%	< 0.1	< 0.1%
Coordinate Traffic Signal Systems	< 0.1	< 0.1%	< 0.1	< 0.1%
Develop Intelligent Transportation Systems	2.2	0.9%	0.4	0.1%
Tougher Enforcement of Vehicle Registration and Emission Test Compliance	0.2	< 0.1%	0.1	< 0.1%
Rule 358: Polystyrene Foam Operations	0.5	0.2%	N/A	N/A
Total	6.0	2.4%	13.4	4.6%

Source: 2007 Ozone Plan at Table 5-2.

a. Summer Fuel Reformulation

The 2007 Ozone Plan relies on H.B. 2307, a Cleaner Burning Gasoline (CBG) program passed by the Arizona Legislature in

1997. The CBG program contains requirements related to seasonal changes in gasoline formulation related to vapor pressure and oxygen content. Typically, fuel reformulation measures are designed to reduce summertime evaporative VOC emissions. However, the results of MAG's emissions modeling analyses suggest that the summer reformulation measure would increase VOC emissions slightly and significantly reduce emissions of NO_x. In Volume 2 of the Appendices to the 2007 Ozone Plan, in response to EPA comments, MAG explains that the slight increase in projected VOC emissions from the summer fuel reformulation measure occurred because the MOBILE6.2 input for the measure specified a Reid vapor pressure (RVP) of 7.0 pounds per square inch (psi). Actual fuel specifications for the 2002 base case used actual fuel specifications from the Arizona Department of Weights and Measures that were lower than 7.0 psi. The projected decrease in NO_x emissions in 2008 from the summer fuel reformulation measure is a result of the removal of the summertime (April 1 through November 1) minimum oxygen content standard for Type 1 gasoline. Oxygenates in fuel are used to improve combustion as a control strategy for CO and other products of incomplete combustion, for example unburned VOCs; however improved combustion also tends to increase formation of NO_x. Therefore, removal of the minimum summertime oxygenate

standard is projected to reduce formation of NO_x. See 2007 Ozone Plan at 4-2, 4-3.

b. Phased-in Emission Test Cutpoints

The 2007 Ozone Plan describes two measures passed by the Arizona Legislature that comprise this attainment measure: H.B. 2237, passed in 1997, that appropriates funds from the State General Fund to develop and implement an alternative test protocol to reduce false failure rates associated with the more stringent standards for the Vehicle Emissions Testing Program, and S.B. 1427, which requires vehicles in certain areas to be emission tested and requires owners of the newest five model year vehicles to be exempt from testing but to pay an in lieu fee that is deposited into the Arizona Clean Air Fund, effective December 31, 1998. Using MOBILE6.2, MAG estimated that this measure reduces NO_x emissions by 2.6 metric tons per day in the June 2008 ozone episode and VOC emissions by 3.1 metric tons per day. See 2007 Ozone Plan at 4-3, 4-4.

c. One Time Waiver from Vehicle Emissions Test

The Arizona Legislature passed S.B. 1002 which limits issuance of a waiver for failure to comply with emission testing requirements to one-time only, effective January 1, 1997. MAG modeled this measure in MOBILE6.2 by adjusting the percentage of waivers allowed and estimated that this measure reduces NO_x emissions by less than 0.1 metric tons per day in the June 2008

ozone episode and VOC emissions by 0.1 metric tons per day. See 2007 Ozone Plan at 4-4.

d. Coordinate Traffic Signal Systems

House Bill 2237 passed by the Arizona Legislature contains appropriations for fiscal years 1997-1998 and 1998-1999 to Arizona Department of Transportation for distribution to cities and counties for synchronization of traffic signals within and across jurisdictional boundaries. MAG modeled this measure in MOBILE6.2 by adjusting the input for idling time at traffic signals and estimated that this measure reduces NO_x emissions by less than 0.1 metric tons per day in the June 2008 ozone episode and VOC emissions by less than 0.1 metric tons per day. See 2007 Ozone Plan at 4-4, 4-5.

e. Develop Intelligent Transportation Systems

The 2007 Ozone Plan cites three committed control measures in the 1-hour Ozone Maintenance Plan that serve to reduce traffic congestion: "Coordinate Traffic Signal Systems", "Develop Intelligent Transportation Systems", and "Reduce Traffic Congestion at Major Intersections". The 2007 Ozone Plan describes these measures as technologies implemented on the local level over fiscal years 2003-2006 that reduce VOC and NO_x emissions by reducing congestion. MAG estimated emission reductions from these measures to be 0.4 metric tons of NO_x per

day in the June 2008 ozone episode and 2.2 metric tons of VOC per day. See 2007 Ozone Plan at 4-5.

f. Tougher Enforcement of Vehicle Registration and Emission Test Compliance

The 2007 Ozone Plan cites two measures from the Arizona Legislature and a program implemented by the Arizona Motor Vehicle Division of the Arizona Department of Transportation that collectively improve enforcement of vehicle registration and compliance with vehicle testing requirements: S.B. 1427 passed in 1998 that requires school and special districts in certain areas to prohibit employees who have not complied with emission testing requirements from parking in employee parking lots, and H.B. 2254 passed in 1999 that requires vehicles owned by federal, state, or political state subdivisions in Arizona to comply with A.R.S 49-542. MAG modeled this measure in MOBILE6.2 by adjusting the weighting between inspection and maintenance (I/M) and non-I/M emission factors, and estimated that this measure reduces NO_x emissions by 0.1 metric tons per day in the June 2008 ozone episode and VOC emissions by 0.2 metric tons per day. See 2007 Ozone Plan at 4-5, 4-6.

g. Maricopa County Rule 358: Polystyrene Foam Operations

Rule 358 adopted by Maricopa County on April 20, 2005 limits VOC emissions from the manufacturing of expanded-polystyrene products. MAG relied on information provided by the

Maricopa County Air Quality Department that Rule 358 would result in 80 percent control effectiveness and 80 percent rule effectiveness. MAG estimated VOC emission reductions to be 0.5 metric tons per day in the June 2008 ozone episode, with no effect on emissions of NO_x. See 2007 Ozone Plan at 4-6, 4-7.

3. Proposed Actions on the RACM Demonstration and Control Strategy

Based on our review of the RACM analysis and Arizona's adopted rules, we propose to find that the 2007 Ozone Plan provides for implementation of all reasonably available control measures necessary to demonstrate expeditious attainment of the 1997 8-hour ozone standard and to meet any related RFP requirements in the Phoenix-Mesa nonattainment area, consistent with the applicable requirements of CAA section 172(c)(1) and 40 CFR 51.912.

C. Attainment Demonstration

1. Requirements for Attainment Demonstration

CAA section 172(c)(1) requires states with ozone nonattainment areas to submit plan provisions that provide for attainment of the national ambient air quality standards. See also 40 CFR 51.908. The attainment demonstration should include:

a. Technical analyses to locate and identify sources of emissions that are causing violations of the 8-hour ozone NAAQS within the nonattainment area;

b. Adopted measures with schedules for implementation and other means and techniques necessary and appropriate for attainment; and

c. Contingency measures required under section 172(c)(9) of the CAA.

See 70 FR 71612 (Nov. 29, 2005).

The requirements for the first two items are described in the sections on emission inventories and RACM/RACT above (sections IV.A and IV.B) and in the sections on air quality modeling and attainment demonstration that follow immediately below. Requirements for the third item are described in the section on contingency measures (IV.F.).

2. Air Quality Modeling in the Phoenix-Mesa 2007 Ozone Plan

Under EPA's ozone implementation rule, an attainment demonstration must meet the air quality modeling and other requirements of 40 CFR 51.112 and must be supported "by means of a photochemical grid model or any other analytical method determined by [EPA] to be at least as effective." *See* 40 CFR 51.908. Air quality modeling is used to establish attainment emissions targets, that is, a combination of ozone precursor emission levels that the area can accommodate without exceeding the NAAQS, and to assess whether the proposed control strategy will result in attainment of the NAAQS.

Air quality modeling is performed for a base year and compared to air quality monitoring data from that year in order to evaluate model performance. Once the performance is determined to be acceptable, future year changes to the emissions inventory are simulated with the model to determine the effect of emissions reductions on ambient air quality. The procedures for modeling ozone as part of an attainment demonstration are contained in EPA's "Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for the 8-Hour Ozone and PM_{2.5} NAAQS and Regional Haze" (Guidance). The Guidance also recommends that supplemental analyses be performed, and used in combination with the modeling in a Weight of Evidence determination that the control strategy will result in attainment of the NAAQS. See Guidance p. 17.

The air quality modeling is described in Chapter 3 of the 2007 Ozone Plan and documented in Volume One of the Appendices to the 2007 Ozone Plan, in Appendix A, Exhibit 2 ("Modeling TSD"). We provide a brief description of the modeling and a summary of our evaluation of it below.

MAG performed the air quality modeling for the 2007 Ozone Plan using the Comprehensive Air Quality Model with Extensions (CAMx) photochemical model, incorporating meteorological fields from the Mesoscale Model version 5 (MM5). These models have

been extensively used in developing SIP attainment demonstrations and are identified in EPA Guidance as candidate models. See Guidance pp. 139 & 160. While there was no intensive field study for this modeling effort, 31 ozone stations and 56 meteorological stations provided an ample database of routinely collected data for use in model application development and performance evaluation.

EPA recommends that States prepare modeling protocols as part of their modeled attainment demonstrations. Guidance, p. 133. The Guidance at pp. 133-134 describes the topics to be addressed in this modeling protocol. A modeling protocol should detail the procedures for conducting the modeling analysis, such as the background and objectives, the schedule and organizational structure, selection of ozone episodes to model, meteorological and emissions input data preparation, model performance evaluation, interpreting modeling results, and procedures for using the model to demonstrate whether proposed strategies are sufficient to attain the NAAQS. The 2007 Ozone Plan's modeling protocol is contained in Volume Two of the Appendices to the 2007 Plan, in Appendix I-i, and covers all of the topics recommended in the Guidance.

A key part of the modeling protocol is the selection of ozone episodes to be modeled. An attainment demonstration that is robust despite natural variability should include modeling of

multiple days with high ozone concentrations, spanning the range of meteorological conditions that lead to exceedances of the NAAQS in the area. See Guidance p. 146. Volume two of the Appendices to the 2007 Ozone Plan, Attachment II, has a thorough description of the episode selection process. A climatology of high ozone days for 1987-2004 was prepared, considering synoptic meteorological conditions, temperature, wind speed, wind direction, and frequency of high ozone by month, day of week, and hour of day. For the more recent 2000-2004 period, ozone spatial patterns were examined, and back trajectories prepared to help assess whether ozone was locally generated or partly due to transport from outside the domain. High temperature occurred on summer days whether they exceeded the standard or not, and so was not useful in selecting episodes. Typical features of episodes are high ozone concentrations northeast of central Phoenix and winds from the east in the morning, shifting to south at midday, and then southwesterly in the afternoon. Based on the analysis, MAG identified three meteorological regimes leading to high ozone concentrations, and six candidate recent ozone episodes. On the basis of ozone episode severity and duration, MAG chose three of the episodes for modeling. Regime 1 is characterized by stagnant winds and purely local generation of ozone; it includes some weekend exceedances. It is represented by the July 8-14, 2002 episode with a maximum ozone

concentration of 107 ppb at Maryvale, and eight other exceeding sites; this was the episode with the highest ozone concentration during the 2000-2004 period. Regime 2 is characterized by light winds, with potential for transport from the south and southwest. It is represented by the June 3-7, 2002 episode with a maximum ozone concentration of 92 ppb at Fountain Hills, and eleven other exceeding sites. Regime 3 is characterized by a non-calm winds from other directions. It is represented by the August 5-11, 2001 episode with a maximum ozone concentration of 99 ppb at Cave Creek, and four other exceeding sites. (Both regimes 2 and 3 occur in this episode.) The regimes had in common low wind speeds, partial cloud cover, and a low pressure system in the southwest of the State and a high pressure system in the northeast. EPA finds the selection process to be well-documented and well-reasoned, and the selected episodes to be a good basis for the attainment demonstration.

Section IV of the Modeling TSD in Volume one of the Appendices to the 2007 Ozone Plan includes extensive statistical and graphical analysis demonstrating adequate overall model performance for the June 2002 episode, but also shows consistent underprediction for the August 2001 and July 2002 episodes. Under EPA Guidelines, models are used in a relative sense (see discussion on Relative Response Factors below), so although underpredictions in model performance do not necessarily mean

that future design values would be underpredicted, they do suggest that these two episodes may be less reliable for predicting the effect of emissions changes. Thus, primary weight was given to the June 2002 episode in the attainment demonstration. CAMx model diagnostic sensitivity tests were performed by MAG to provide assurance that the model is adequately simulating the physical and chemical processes leading to ozone in the atmosphere and that the model responds in a scientifically reasonable way to emissions changes. The tests included zeroing out boundary condition concentrations, initial condition concentrations, and various categories of emissions. The model responded in a physically reasonable way in each of these tests. MAG also undertook sensitivity tests for MM5, which provides meteorological input to the CAMx air quality model. These are described in Appendix III to the Modeling TSD, and included incorporation of alternative observational data sets, and an alternative convection scheme to avoid overestimating convective rainfall in this dry southwestern area. The meteorological model was found to perform adequately for wind speed, wind direction, temperature, and humidity. EPA finds the procedures MAG followed to be well-documented and reasonable, and to be acceptable for supporting the modeled attainment demonstration.

For the modeled attainment test, the model is used to predict the air quality effect of changes in emissions due to land use changes, growth, and the effect of control measures. Under current EPA Guidance, the model is used to develop Relative Response Factors (RRFs) that give the model's response to emission changes, and the RRFs are applied to monitored design value concentrations to arrive at the predicted future concentrations. The particulars of the calculation, and which model grid cells and modeled days are to be included, are specified in the EPA Guidance. Guidance pp. 15, 25, and 155. MAG assessed the 2008 effect of the seven control measures using the EPA-specified procedure, and found the maximum predicted ozone design value to be 84 ppb, which is in attainment of the ozone NAAQS. It should be noted that this result includes 5 percent additional NO_x to create a safety margin for the transportation conformity motor vehicle emissions budget. EPA agrees that MAG's modeling demonstrates attainment of the ozone NAAQS by summer 2008.

In addition to a modeled attainment demonstration, which focuses on locations with an air quality monitor, EPA generally requires an Unmonitored Area Analysis. This analysis is intended to ensure that a control strategy leads to reductions in ozone at other locations that have no monitor but that might have base year (and/or future year) ambient ozone levels exceeding the

NAAQS. The unmonitored area analysis uses a combination of model output and ambient data to identify areas that might exceed the NAAQS if monitors were located there. In order to examine unmonitored areas in all portions of the modeling domain, EPA recommends use of interpolated spatial fields of ambient data combined with gridded modeled outputs. Guidance, p. 29. MAG used a variation of the EPA-described approach, described in section V of the modeling TSD, as a corroboratory screening test. The attainment demonstration passed this corroboratory screening test. EPA notes that concentration gradients in the supplied spatial isopleth maps appear to be weak except in the downtown area where the monitoring network is fairly dense and the RRFs themselves have only weak spatial variation. We believe the plan's Unmonitored Area Analysis is adequate.

Finally, the Weight of Evidence Analysis in Appendix V of the Modeling TSD, in Volume two of the Appendices to the 2007 Ozone Plan, includes several supplemental analyses in support of the attainment demonstration. These include ozone air quality trends and precursor emission trends, both of which show continued progress and support the conclusion that the attainment demonstration is sound. Appendix G of Attachment II to the modeling protocol, in Volume two of the Appendices to the 2007 Ozone Plan also illustrated the downward ozone trends at all ozone monitors. Other analyses examined the sensitivity of

the model to NO_x reductions, the representation of VOC speciation in the model, the VOC:NO_x ratio as a photochemical indicator, Process Analysis, and examination of Weekday vs. Weekend effects. These analyses provided observational and modeling evidence that the model is correctly replicating the ozone photochemistry of the area, and that the Weight of Evidence supports the conclusion that the Phoenix-Mesa will attain the ozone NAAQS in 2008. Additionally, Table 3 below shows that design values (DV) in ppm from all monitors in the Phoenix-Mesa nonattainment area, operated by three different agencies (Pinal County Air Quality Control District (PCAQCD), Maricopa County Air Quality Division (MCAQD), and ADEQ), appear to have been meeting the 1997 ozone NAAQS based on monitored ozone concentrations since 2005.

EPA proposes to find that the modeling provides an adequate basis for the RACM/RACT, RFP, and attainment demonstrations in the Phoenix-Mesa 2007 8-Hour Ozone Plan.

Table 3: Ozone Design Values from 2005 – 2010 Monitoring Data in Phoenix-Mesa Nonattainment Area*

Site	Site ID	Agency		2005-07	2006-08	2007-09	2008-10
Apache Junction	04-013-3001	PCAQCD	DV (ppm)	0.076	0.080	0.075	0.073
			% complete	99	99	99	99
Buckeye	04-013-	MCAQD	DV (ppm)	0.065	0.066	0.064	0.064

	4011		% complete	100	100	100	100
Blue Point	04-013- 9702	MCAQD	DV (ppm)	0.067	0.064	0.067	0.070
			% complete	100	94	99	99
Cave Creek	04-013- 4008	MCAQD	DV (ppm)	0.079	0.078	0.075	0.074
			% complete	100	100	100	100
Central Phoenix	04-013- 3002	MCAQD	DV (ppm)	0.075	0.074	0.070	0.071
			% complete	99	97	100	100
Dysart	04-013- 4010	MCAQD	DV (ppm)	0.067	0.067	0.066	0.068
			% complete	97	100	100	100
Falcon Field	04-013- 1010	MCAQD	DV (ppm)	0.076	0.075	0.071	0.070
			% complete	97	98	100	100
Fountain Hill	04-013- 9704	MCAQD	DV (ppm)	0.082	0.079	0.074	0.074
			% complete	98	100	99	100
Glendale	04-013- 2001	MCAQD	DV (ppm)	0.075	0.074	0.071	0.072
			% complete	100	100	100	100
Humboldt Mountain	04-013- 9508	MCAQD	DV (ppm)	0.081	0.078	0.074	0.071
			% complete	100	100	99	100
North Phoenix	04-013- 1004	MCAQD	DV (ppm)	0.082	0.081	0.076	0.077
			% complete	99	95	100	100
Pinnacle Peak	04-013- 2005	MCAQD	DV (ppm)	0.078	0.074	0.072	0.073
			% complete	99	99	100	99
Rio Verde	04-013- 9706	MCAQD	DV (ppm)	0.083	0.080	0.075	0.072
			% complete	99	92	96	100
South Phoenix	04-013- 4003	MCAQD	DV (ppm)	0.072	0.072	0.071	0.072
			% complete	99	99	99	100
South Scottsdale	04-013- 3003	MCAQD	DV (ppm)	0.078	0.077	0.075	0.074
			% complete	98	97	99	99
JLG Supersite	04-013- 9997	ADEQ	DV (ppm)	0.076	0.076	0.075	0.075
			% complete	100	98	100	99
Tempe	04-013-	MCAQD	DV (ppm)	0.077	0.077	0.073	0.071

	4005		% complete	97	97	100	98
West Chandler	04-013-	MCAQD	DV (ppm)	0.076	0.076	0.073	0.073
	4004		% complete	100	98	100	100
West Phoenix	04-013-	MCAQD	DV (ppm)	0.074	0.078	0.073	0.073
	0019		% complete	100	99	99	99

* The data in this table has been certified in EPA's Air Quality System (AQS) database in accordance with the requirements of 40 CFR part 58. We provide these data only to support our evaluation of the modeling and attainment demonstration and not to support a determination regarding attainment, which is not part of today's proposed action.

3. Proposed Action on the Attainment Demonstration

In order to approve a SIP's attainment demonstration, EPA must make several findings:

First, we must find that the demonstration's technical bases, emission inventories and air quality modeling, are adequate. As discussed in section IV.A and IV.C.2, we are proposing to approve the base year emission inventory and to find the air quality modeling adequate to support the attainment demonstration.

Second, we must find that the SIP provides for expeditious attainment through the implementation of all RACM. As discussed above in section III.B, we propose to find that the 2007 Ozone Plan provides for implementation of all reasonably available control measures necessary for expeditious attainment of the

1997 8-hour ozone NAAQS and any related RFP requirements in the Phoenix-Mesa nonattainment area.

Third, we must find that the emission reductions that are relied on for attainment are creditable and are sufficient to provide for attainment. All of the key attainment measures relied on in the 2007 Ozone Plan to attain the 1997 8-hour ozone standard by June 15, 2009 have been adopted and approved into the SIP.

For the foregoing reasons, we propose to approve the attainment demonstration in the 2007 Ozone Plan for the Phoenix-Mesa nonattainment area.

D. Reasonable Further Progress Demonstration

CAA section 172(c)(2) requires that plans for nonattainment areas provide for reasonable further progress (RFP). RFP is defined in section 171(1) as "such annual incremental reductions in emissions of the relevant air pollutant as are required by [title 1, part D] or may reasonably be required by the Administrator for the purpose of ensuring attainment of the applicable [standard] by the applicable date." The ozone implementation rule interprets the RFP requirements for the purposes of the 1997 ozone standards, establishing requirements for RFP that depend on the area's classification. For areas with attainment dates on or before June 15, 2009, RFP would be met by ensuring emissions reductions needed for attainment are

implemented by the beginning of the ozone season prior to the attainment date. See 40 CFR 51.910(b) and 70 FR 71612.

The attainment date for the Phoenix-Mesa ozone nonattainment area is June 15, 2009, and as discussed in the RACM demonstration and control strategy (section IV.B) and the attainment demonstration (section IV.C) sections above, all of the control measures needed for the attainment demonstration were being implemented prior to the 2008 ozone season. We propose, therefore, to approve the RFP demonstration in the 2007 Ozone Plan.

E. Contingency Measures

1. Requirements for Contingency Measures

CAA section 172(c)(9) requires plans to provide for the implementation of contingency measures, that achieve additional emission reductions, to be undertaken if the area fails to meet RFP milestones or fails to attain by its attainment date. These contingency measures must be rules or measures that are ready for implementation quickly upon failure to meet milestones or attainment. The SIP should define trigger mechanisms for the contingency measures, specify a schedule for implementation, and indicate that the measures will be implemented without significant further action by the State or EPA. See 68 FR 32802 (June 2, 2002) and 70 FR 71612 (Nov. 29, 2005).

Additional guidance on the CAA contingency measure provisions is found in the General Preamble at 13510-13512 and 13520. The guidance indicates that states should adopt and submit contingency measures sufficient to provide a 3 percent emission reduction from the adjusted RFP base year. This level of reduction is generally acceptable to offset emission increase while States are correcting their SIPs. These reductions would be beyond what is needed to meet the attainment and/or RFP requirement. States may use reductions of either VOC or NO_x or a combination of both to meet the contingency measure requirements. General Preamble at 13520, footnote 6. EPA guidance also provides that contingency measures could be implemented early, i.e., prior to the milestone or attainment date²¹. Consistent with this policy, states are allowed to use excess reductions from already adopted measures to meet the CAA section 172(c)(9) and 182(c)(9) contingency measure requirement. This is because the purpose of contingency measures is to provide extra reductions that are not relied on for RFP or attainment that will provide for continued progress while the plan is being revised to fully address the failure to meet the required milestone. Nothing in the CAA precludes a State from implementing such measures before they are triggered. This

²¹ Memorandum, G.T. Helms, Chief, Ozone/Carbon Monoxide Programs Branch to Air Directors, "Contingency Measures for Ozone and Carbon Monoxide Redesignations", June 1, 1992.

approach has been approved in numerous SIPs. See 62 FR 15844 (April 3, 1997) (approval of the Indiana portion of the Chicago area 15 percent Rate of Progress plan); 66 FR 30811 (June 8, 2001) (proposed approval of the Rhode Island post-1996 ROP plan); and 66 FR 586 and 66 FR 634 (January 3, 2001) (approval of the Massachusetts and Connecticut 1-hour ozone attainment demonstrations). In the only adjudicated challenge to this approach, the court upheld it. See *LEAN v. EPA*, 382 F.3d 575 (5th Cir. 2004); 70 FR 71612.

2. Contingency Measures in the 2007 Ozone Plan

Contingency measure provisions for the Phoenix-Mesa nonattainment area and the methodologies used to estimate the emission reductions from these measures are described in Chapters 4 and 5 of the 2007 Ozone Plan and Section V of Volume 1 of the Appendices to the 2007 Ozone Plan. Table 4 lists the five contingency measures and the estimated reductions in VOC and NO_x emissions from each measure. All five contingency measures have already been implemented in the Phoenix-Mesa nonattainment area, but credit for these measures were not needed or used to demonstrate attainment. See 2007 Ozone Plan at pp. 4-7 through 4-10 and 5-15 through 5-17.

Table 4: Emission Reductions from Individual Contingency Measures in the Phoenix-Mesa 8-Hour Ozone Modeling Domain

	VOC		NO _x	
Base Case Emissions on June 6, 2002	696.13 metric tons/day		291.82 metric tons/day	
Contingency Measure	Reduction (metric ton/day)	Percent Reduction	Reduction (metric ton/day)	Percent Reduction
Expansion of Area A Boundaries	1.3	0.2%	0.7	0.2%
Gross Polluter Option for I/M Waivers	<0.1	<0.1%	<0.1	<0.1%
Increased Waiver Repair Limit Options	<0.1	<0.1%	<0.1	<0.1%
Federal Heavy Duty Diesel Vehicle Standards	<0.1	<0.1%	2.5	0.9%
Federal Nonroad Equipment Standards	14.6	2.1%	15.6	5.3%
Total	15.9	2.3%	18.8	6.4%

Source: 2007 Ozone Plan at Table 5-6.

a. Expansion of Area A Boundaries

In 2001, the Arizona legislature passed H.B. 2538 to expand the boundaries of Area A, adding additional portions of Maricopa County west of Goodyear and Peoria and a small area on the north

side of Lake Pleasant. The implementation of air quality measures within the new Area A boundaries began on January 1, 2002, except for public sector alternative fuel requirements to be phased in over a seven-year period. MAG modeled this contingency measure by increasing the number of registered vehicles in Area A that will be required to participate in the I/M program. MAG estimated the emission reductions from this contingency measure to be 1.3 metric tons per day of VOC and 0.7 metric tons per day of NO_x, but did not take credit for this measure in the attainment demonstration. See 2007 Ozone Plan at 4-7 and 4-8.

b. Gross Polluter Option for I/M Waivers

The Arizona legislature passed S.B. 1427 in 1998 to require vehicle owners with vehicles emitting more than twice the emission standard to repair the vehicle sufficiently to reduce the emission levels to less than twice the standard in order to obtain a compliance waiver from the Vehicle Emissions Inspection Program. ADEQ modeled the emission reductions for this measure and estimated the emission reductions from this contingency measure to be less than 0.1 metric tons per day of VOC and less than 0.1 metric tons per day of NO_x. MAG but did not take credit for this measure in its attainment demonstration. See 2007 Ozone Plan at 4-9.

c. Increased Waiver Repair Limit Options

In 1998, the Arizona legislature passed S.B. 1427 to increase the amount a person must spend to repair a failing 1967 - 1974 vehicle in Area A in order to qualify for a waiver from \$100 to \$200. MAG modeled this measure using MOBILE6.2 by reducing the pre-1981 vehicle waiver rate from 4 to 2.6 percent. The emission reductions from this contingency measure were estimated to be less than 0.1 metric tons per day of VOC and less than 0.1 metric tons per day of NO_x. MAG did not take credit for this measure in its attainment demonstration. See 2007 Ozone Plan at 4-9.

d. Federal Heavy Duty Diesel Vehicle Standards

On January 18, 2001, EPA issued a final rule that set more stringent emission standards for new heavy duty diesel vehicles (66 FR 5001). The rule requires high-efficiency catalytic convertors or comparable technologies be installed on 2007 and later model year diesel vehicles, and requires ultra-low sulfur fuel be used in all onroad diesel vehicles beginning in 2006. MAG modeled emission reductions from this federal measure using MOBILE6.2 and estimated VOC reductions of less than 0.1 metric tons of VOC per day and 2.5 metric tons of NO_x per day. MAG did not take credit for this measure in its attainment demonstration. See 2007 Ozone Plan at 4-9.

e. Federal Nonroad Equipment Standards

On October 23, 1998, EPA issued a final rule to set more stringent Tier 2 and Tier 3 emission standards for new diesel nonroad equipment (63 FR 56967). The Tier 2 program phased in more stringent standards for all equipment between 2001 and 2006 and Tier 3 imposed even more stringent standards for 50 to 750 horsepower engines in 2006 to 2008. Additionally, on June 29, 2004, EPA issued the Clean Air Nonroad Diesel - Tier 4 Final rule to require manufacturers to produce nonroad engines with emission controls that will reduce emissions by more than 90 percent (69 FR 38958). The Tier 4 standards apply to nonroad engines less than 25 horsepower beginning in 2008 and will apply to larger engines over 2011 to 2015. MAG estimated emission reductions from this measure using the EPA NONROAD model and projected VOC emission reductions of 14.6 metric tons of VOC per day and 15.6 metric tons of NO_x per day. MAG did not take credit for this measure in its attainment demonstration. See 2007 Ozone Plan at 4-9 and 4-10.

3. Proposed Action on the Contingency Measures

We propose to approve the contingency measures in the 2007 Ozone Plan. The contingency measures are consistent with EPA guidance that recommends a 3 percent emission reduction. All contingency measures have already been implemented but EPA guidance allows for the early implementation of contingency measures.

F. Motor Vehicle Emissions Budgets for Transportation Conformity

1. Requirements for Motor Vehicle Emission Budgets

CAA section 176(c) requires federal actions in nonattainment and maintenance areas to conform to the SIP's goals of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of the standards. Conformity to the SIP's goals means that such actions will not: (1) cause or contribute to violations of a NAAQS, (2) worsen the severity of an existing violation, or (3) delay timely attainment of any NAAQS or any interim milestone.

Actions that involve Federal Highway Administration (FHWA) or Federal Transit Administration (FTA) funding or approval are subject to the EPA's transportation conformity rule, codified in 40 CFR part 93, subpart A. Under this rule, metropolitan planning organizations (MPOs) in nonattainment and maintenance areas coordinate with state and local air quality and transportation agencies, EPA, FHWA, and FTA to demonstrate that an area's regional transportation plans (RTP) and transportation improvement programs (TIP) conform to the applicable SIP. This demonstration is typically done by showing that estimated emissions from existing and planned highway and transit systems are less than or equal to the motor vehicle emission budgets (budgets) contained in the SIP. An attainment, maintenance, or RFP SIP should establish budgets for the attainment year, each

required RFP year, or last year of the maintenance plan, as appropriate. Budgets are generally established for specific years and specific pollutants or precursors. Ozone attainment and RFP plans should establish budgets for NO_x and VOC. See 40 CFR 93.102(b)(2)(i).

Before an MPO may use budgets in a submitted SIP, EPA must first determine that the budgets are adequate or approve the budgets. In order for EPA to find the budgets adequate and approvable, the submittal must meet the conformity adequacy requirements of 40 CFR 93.118(e)(4) and be approvable under all pertinent SIP requirements. To meet these requirements, the budgets must reflect all of the motor vehicle control measures contained in the attainment and RFP demonstrations. See 40 CFR 93.118(e)(4)(v).

2. Motor Vehicle Emission Budgets in the Phoenix-Mesa 2007 Ozone Plan

The 2007 Ozone Plan for Phoenix Mesa included budgets for VOC and NO_x for the 2008 attainment year. On October 4, 2007, we notified ADEQ and MAG that we found the MVEB for the 2008 attainment year adequate for transportation conformity purposes. See letter from Deborah Jordan, EPA Region 9, to Nancy Wrona, ADEQ, and Dennis Smith, MAG, "RE: Adequacy Status of Motor Vehicle Emissions Budgets in Eight-Hour Ozone Plan for the Maricopa Nonattainment Area (June 2007)", October 4, 2007. We

published a notice of our findings at 72 FR 60666 (October 25, 2007). The budget for the 2008 attainment year is represented by onroad VOC and NO_x emissions for the Phoenix-Mesa modeling domain on the peak episode day in June 2008 of 72.3 metric tons per day of VOC and 145.5 metric tons per day of NO_x. MAG used geographic information systems (GIS) to separate the onroad mobile emissions from the Phoenix-Mesa 8-hour ozone nonattainment area from the modeling domain, resulting in the estimated 2008 MVEB of 67.9 metric tons per day of VOC and 138.2 metric tons per day of NO_x.

3. Proposed Action on the Motor Vehicle Emission Budgets

Based on our evaluation of the 2007 Ozone Plan and the budgets contained in it, which reflect all motor vehicle control measures contained in the attainment and RFP demonstration, we are proposing to approve the 2008 MVEB.

V. EPA's Proposed Action

For the reasons discussed above, EPA is proposing to approve Arizona's submitted SIP for attaining the 1997 8-Hour Ozone Standard in the Phoenix-Mesa nonattainment area.

Specifically, EPA is proposing to approve under CAA section 110(k)(3) the following elements of the 2007 Ozone Plan for Phoenix-Mesa:

1. The 2002 base year emission inventory as meeting the requirements of CAA section 172(c)(3) and 40 CFR 51.915;

2. The reasonably available control measures demonstration as meeting the requirements of CAA section 172(c)(1) and 40 CFR 51.912(d);

3. The reasonable further progress demonstration as meeting the requirements of CAA section 172(c)(2) and 40 CFR 51.910;

4. The attainment demonstration as meeting the requirements of CAA section 172(c)(1) and 40 CFR 51.908;

5. The contingency measures for failure to make RFP or to attain as meeting the requirements of CAA section 172(c)(9); and

6. The motor vehicle emission budgets for the attainment year of 2008, which are derived from the attainment demonstration, as meeting the requirements of CAA section 176(c) and 40 CFR part 93, subpart A.

VI. Statutory and Executive Order Reviews

Under the Clean Air Act, the Administrator is required to approve a SIP submission that complies with the provisions of the Act and applicable Federal regulations. 42 U.S.C. 7410(k); 40 CFR 52.02(a). Thus, in reviewing SIP submissions, EPA's role is to approve state choices, provided that they meet the criteria of the Clean Air Act. Accordingly, this action merely proposes to approve state law as meeting Federal requirements and does not impose additional requirements beyond those imposed by state law. For that reason, this proposed action:

- is not a "significant regulatory action" subject to review by the Office of Management and Budget under Executive Order 12866 (58 FR 51735, October 4, 1993);
- does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 et seq.);
- is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 et seq.);
- does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Public Law 104-4);
- does not have Federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
- is not an economically significant regulatory action based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);
- is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001);
- is not subject to requirements of Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because application of those requirements would be inconsistent with the Clean Air Act; and

- does not provide EPA with the discretionary authority to address, as appropriate, disproportionate human health or environmental effects, using practicable and legally permissible methods, under Executive Order 12898 (59 FR 7629, February 16, 1994).

In addition, this proposed rule does not have tribal implications as specified by Executive Order 13175 (65 FR 67249, November 9, 2000), because the SIP is not approved to apply in Indian country located in the state, and EPA notes that it will not impose substantial direct costs on tribal governments or preempt tribal law.

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Ozone, Nitrogen Dioxide, Volatile Organic Compounds.

Authority: 42 U.S.C. 7401 *et seq.*

Dated: March 30, 2012 Keith Takata
Acting Regional Administrator,
EPA Region IX.

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